

WHAT IS CLAIMED IS:

- Sub A1* 1. A method of receiving a wireless transmission comprising the steps of:
2 inverting the polarity of an incoming waveform on every one half clock cycle of
4 a conversion clock to produce a commutated waveform; and
2 converting said commutated waveform to a series of representative digital values
4 using a delta-sigma modulator clocked by said conversion clock.
- Sub C1* 2. The method of claim 1, wherein said incoming waveform is centered
2 about a radio frequency and carries a modulated signal, wherein said conversion clock
4 has a frequency approximately equal to said radio frequency, and said series of
4 representative digital values are representative of said modulated signal.
3. The method of claim 2, further comprising the step of digitally filtering
2 said series of representative digital values according to programmable filter
4 characteristics wherein said programmable filter characteristics are selected based upon
4 a type of modulation of said modulated signal.
- Sub A2* 4. The method of claim 1, wherein said step of inverting further comprises
2 the steps of:
4 producing an inverted signal representation of said incoming waveform;
4 producing an non-inverted signal representation of said incoming waveform;
6 coupling said inverted signal representation to a first input port of a switch;
6 coupling said non-inverted signal representation to a second input port of said
switch; and
8 coupling said conversion clock to a control port of said switch.
- Sub C1* 5. The method of claim 1, wherein said incoming waveform is received
2 over an antenna and wherein an amplitude of said incoming waveform is in fixed
proportion to an amplitude of a signal strength received by said antenna.

6. The method of claim 1, further comprising the step of filtering an
2 antenna signal to prevent aliasing out-of-band signal and noise power into a desired
4 signal band, said step of filtering producing said incoming waveform, and wherein a
frequency of said conversion clock is selected from a range of frequencies passed in said
step of filtering.

2 *Sub a3* 7. A receiver comprising:
4 a continuous time commutator configured to be coupled to a digital conversion
clock and configured to invert a polarity of an incoming signal applied to an input port
on every half clock cycle of said digital conversion clock and to produce a commutated
signal at an output port; and
6 a delta-sigma modulator having a clock input port coupled to said digital
conversion clock, having a signal input port coupled to said output port of said
continuous time commutator and having an output port configured to produce a series of
digital values representative of a modulation waveform carried by said incoming signal.

8. The receiver of Claim 7, wherein said continuous time commutator
2 comprises:

4 a complementary amplifier configured to receive said incoming signal and to
produce an inverted version of said incoming signal at an inverted output port and to
6 produce a non-inverted version of said incoming signal at a non-inverted output port;
and

8 a switch having a first input port coupled to said inverted output port, having a
second input port coupled to said non-inverted output port and having a control port
coupled to said digital conversion clock.

9. The receiver of Claim 7, wherein said delta-sigma modulator comprises:
2 a loop amplifier having a first input port coupled to said output port of said
continuous time modulator, having a second input, and having an output port;
4 a continuous time loop filter coupled to said output port of said loop amplifier
and having an output port;

6 an edge-triggered comparator coupled to said output port of continuous time
loop filter, having a clock input coupled to said digital conversion clock and having an
8 output port; and

10 a one-bit digital to analog converter having an input port coupled to said output
port of said edge-triggered comparator and having an output port coupled to said second
input of said loop amplifier.

2 10. The receiver of claim 7, further comprising a programmable digital filter
having an input port coupled to said output of said delta-sigma modulator, said
programmable digital filter configured to filter said series of digital values according a
4 filter characteristics selected based upon a type of modulation of said modulation
waveform.

2 11. The receiver of claim 7, further comprising an antenna coupled to said
continuous time commutator so as to receive said incoming signal, wherein an
4 amplitude of said incoming signal is in fixed proportion to an amplitude of a signal
strength received by said antenna.

2 12. The receiver of claim 7, further comprising a filter configured to receive
an antenna signal and configured to prevent aliasing of out-of-band signal and noise
4 power into a desired signal band, said filter coupled to said input port of said continuous
time commutator, wherein a frequency of said conversion clock is selected from a range
of frequencies passed by said filter.

2 13. A circuit comprising:

4 a linearizing operational amplifier in a non-inverting unity follower
configuration, configured to receive an incoming waveform;

6 a transistor network having a first input coupled to an output of said linearizing
operational amplifier and having a second input coupled to said incoming waveform,
said linearizing operational amplifier and said first complementary transistor network

8 configured to produce a pair of complementary currents that are linearly related to an
input voltage level of said incoming waveform;

10 a first current source coupled to said transistor network and configured to provide a fixed current through said first transistor network;

12 a commutator network coupled to a clock signal and coupled to said pair of complementary currents that are linearly related to said input voltage level of said incoming waveform;

14 a second current source configured to produce a fixed current; and

16 a switching network coupled to said second current source, having
complementary input ports configured to be coupled to logic values and configured to
produce complementary switched currents, wherein said complementary switched
currents are coupled to said commutator network in order to control together
18 complementary voltage outputs produced by the circuit.

14. A apparatus of receiving a wireless transmission comprising:

means for inverting the polarity of an incoming waveform on every one half clock cycle of a conversion clock to produce a commutated waveform; and

~~4 means for converting said commutated waveform to a series of representative digital values using a delta-sigma modulator clocked by said conversion clock.~~

Jul 29/ 15. The apparatus of claim 14, wherein said incoming waveform is centered
2 about a radio frequency and carries a modulated signal, wherein said conversion clock
has a frequency approximately equal to said radio frequency, and said series of
4 representative digital values are representative of said modulated signal.

16. The apparatus of claim 15 further comprising means for digitally filtering
2 said series of representative digital values according to programmable filter
characteristics wherein said programmable filter characteristics are selected based upon
4 a type of modulation of said modulated signal.

Add G1 17. The apparatus of claim 14, wherein said means for inverting further
2 comprises:

- 4 producing an inverted signal representation of said incoming waveform;
- 6 producing an non-inverted signal representation of said incoming waveform;
- 8 coupling said inverted signal representation to a first input port of a switch;
- coupling said non-inverted signal representation to a second input port of said switch; and
- coupling said conversion clock to a control port of said switch.

Add G1 18. The apparatus of claim 14, wherein said incoming waveform is received
2 over an antenna and wherein an amplitude of said incoming waveform is in fixed
proportion to an amplitude of a signal strength received by said antenna.

19. The apparatus of claim 14, further comprising means for filtering an
2 antenna signal to prevent aliasing out-of-band signal and noise power into a desired
4 signal band, said means for filtering producing said incoming waveform, and wherein a
frequency of said conversion clock is selected from a range of frequencies passed in said
means for filtering.

Add G1